# THE SCOPE

*Articles by*

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# THE SCOPE

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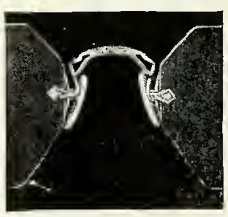

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# THE SCOPE

*Presents*

# "THE PROBLEM OF PROGRESSIVE MYOPIA"

*by Ralph H. Green, O. D., D. O. S.*

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*Boston, Massachusetts*

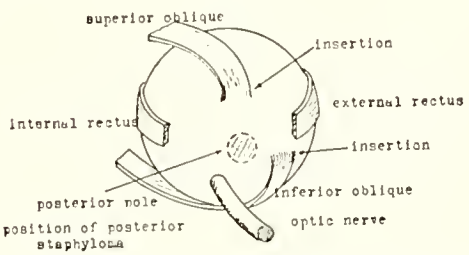
*(continued from September issue)*

4. An argument in favor of the convergence theory is that it is known that the intra-ocular pressure does increase with the act of convergence, and it has been suggested that this increase in intra-ocular pressure with convergence may be responsible for the production of myopia. But, if this intra-ocular pressure was effective in lengthening the antero-posterior diameter through increased intra-ocular pressure, it would likely do so at the weakest point in the eyeball, and that is at the lamina cribosa in the physiological excavation. Yet we know that the increase in the antero-posterior diameter of the eye takes place at the posterior pole. (Figure 6.)

The mechanism whereby convergence is proposed as the cause of myopia is: In the act of convergence, the internal recti, particularly, are activated while the external recti are inhibited (Sherrington's Law of Reciprocal Innervation). The eyeballs revolve about the centers of rotation and in so doing, the internal recti are lifted away from the eyeball while more of the body of the external recti bind against the globe. At the same time, to prevent retraction of the eyeball back into the bony orbit, the two oblique muscles increase their traction.

If the insertion of the oblique is carefully studied, it will be observed that the point of insertion is located at the region of the posterior pole, which is that point at which the posterior ectasia occurs. Continuation of this process, it is supposed, results in a pulling of the sclera at this point, causing a weakness of the tissue. (Figure 7.)

Figure 7




Back view of the eyeball illustrating the insertion points of the oblique muscles relative to the posterior pole.

This proposition, most generally accepted today, cannot be considered the primary cause, although it may play a part, for the following reasons:

a. The theory fails to explain the myopia in one-eyed individuals.

b. In some cases, it is frequently observed that one eye may be practically emmetropic while the other eye may be myopic.

c. Clinically it has been observed that cases in which base in prisms are used eliminated the need for convergence, but did not necessarily result in checking the progressive myopia.

d. Experimenting on young rabbits, Ochi concluded that even fairly strong compression of the eyeball by the extra-ocular muscles cannot greatly lengthen its diameter. Therefore, it does not seem likely that the pressure of the extra-ocular muscles on the walls of the eyeball can alter the antero-posterior diameter if the sclera is sufficiently resisting. However, if the sclera is weakened or too yielding, it may be possible that this external pressure may exert an influence.

e. The myopia usually progresses (with the exception of the true progressive type) from the ages of ten to twenty, at which time it usually comes to a standstill. If convergence is the primary cause of myopia, why does not the myopia still continue with the use of convergence after the usual age at which the myopia becomes stationary? Some myopic individuals do as much close work, if not more, after the age of twenty. Yet, they do not develop additional myopia after that age. Obviously, there must be a primary cause which predisposes the sclera to a too-yielding condition which, when coupled with engagement in close work, involving the use of convergence, develops myopia. Just what this fundamental cause is, is not well understood.

(3) SHORT OPTIC NERVE: Myopia has been said to be the result of a short optic nerve which in the act of convergence, exercises a pulling on the back of the eye. This, however, is a weak proposition for the following reasons:

1. On two hundred post mortem examinations, hardly a case was found which had an optic nerve which was too short, and in cases where such was found, the refraction was not myopia. (Stilling).

2. The result of the pulling process should be observed at the optic nerve head, yet the changes can be readily observed to be at the posterior pole.

3. As the eyeball increases in its axial diameter the optic nerve is pushed back and it has been observed to assume a spiral position. As the myopia advances, this is even more noticeable and less likely to pull at the eyeball.

Levinsohn proposed that myopia may be produced by a forward movement of the eyeballs (proptosis) during the forward bending of the head, as in the usual reading position. This forward movement of the eyeballs he attributed to gravitational forces. His theory is based on the results of a physical test in which a string was attached to a pliable rubber ball, which, when suspended by the string, altered its position at the point of attachment, and the center of gravity was displaced. The new shape of the rubber ball simulated the shape of the eyeball in high myopia. In order to prove this theory, he performed the following experiment

Apes were held in a horizontal position for five hours daily in specially devised boxes. This forced the head to be placed in a position representing an exaggerated form of bending forward during reading process. Before the experiment, the refraction in one ape was emmetropic and in another three diopters myopic. After the experiment, the refraction was minus 5.00 and minus 13 diopters respectively. At the same time, he observed typical myopic changes at the edge of the papilla with the ophthalmoscope.

This experiment was repeated by other investigators, but without the same results, making the entire experiment questionable. Also if the optic nerve was pulled away from the eyeball at its point of entrance into the eyeball, the ectasia would take place at this point; but if we carefully note the position of ectasia in a highly myopic eye, we observe that this bulging process takes place, not at the entrance of the optic nerve, but at the

# LET THERE BE LIGHT

*by Ronald Wallace*

My name is Victor del Armati. I speak it loudly and with great pride — pride born of a royal and honourable ancestry. Yet there was a time when my whole being was shattered by a cruel knowledge and I suffered mad tortures of shame.

The founder of the ancient and respected Armati line was once reputed, not as a great scientist or public benefactor, but only (how cruel is fate!) as a great fool. I had discovered his tombstone in our beautiful city of Florence, and how it shrieked its disheartening, disillusioning message: "Here lies the body of Armato degli Armati who invented spectacles — May God forgive him his sins" . . . What a sad, heart-rending glow to find an Armati begging pardon for crime. In being the father of Optometry he had sinned. And what is Optometry . . . ? The Italian sun warming the ancient tombstone reflected to my depressed mind a beam of hope. If only I could show the world that Optometry has been of some benefit to mankind, then I, Victor del Armati, could vindicate my ancestor's name, and the house of Armati could sleep once more in peace.

Zealously, I retired to my dusty library to prepare my defense. Day and night were all the same to my determined mind as I read through history after history. One thought hammered cosntantly in my mind — the name of Armati must be freed from the taint of shameful insinuations. The books were stacking up on my desk, and even they seemed to my tired brain a defence, a barricade from which I hoped to fight the great battle of vindication.

And so I learned the romantic story of Optometry. I read about the wise old Chinese mandarin who found comfort from eye-strain by reading his homely philosophy through a piece of convex glass. His aging eyes were presbyopic and he had unwittingly found a cure. Emperor Nero, according to records of 79 A. D., discovered that his gladiators appeared far clearer when observed through a concave emerald. (By now my interest was at fever pitch and the more I read, the greater grew my appetite for knowledge.) The medieval era saw progress in visual correction blocked by the superstitious element. Even though learned Friar Bacon in 1250 gained by careful research a knowledge of corrective glass and actually made plano-convex lenses, his lips were closed by fear. For any such unnatural theories and contrivances would have been attributed to Satanic inspiration. For these reasons, the world was often seen in the wrong perspective. History was being shaped by men whose eyes were telling them lies. It was an age of Don Quixotes fighting distorted windmills.

> "And he sees upon a donkey
> On a lonely road in Spain,
> Up which a lean and foolish Knight
> Forever rides in vain."

The books had piled high about me, and at last I say my defence in a clear light. Many years after my forefather invented spectacles, a Dutch astronomer, Snell, uncovered the mysteries of refraction. The practice of visual correction took definite form. Guilds of Optical Craftsmen grew up in Spain, Germany. Holland, and England. Lens frames evolved from leather to horn and then to gold and silver wire. This was the period of the rebirth of knowledge — the Renaissance — and later above all other voices was heard the loud lament of blind John Milton —

"Should God exact day labor, light denied?"

The predominant note in the world's song of awakening was the quest for knowledge. Eyes designed for primitive man in his world of soft green fields and soothing forest shadows were forced to see good detail at abnormally close range. Nature never anticipated Edison and the changing of night into day and the eyes were not adapted to such an artificial

change. Yet paradoxically enough our ears were certainly placed conveniently for spectacles.

The invention of the bifocal lens by Benjamin Franklin, Young's determination, and Airy's correction, of astigmatism elevated Optics immeasurably. The need grew for men to put into practice the contemporary knowledge. The medical men, truthfully arguing that the eye was a part of the human anatomy, assumed refraction. Progress was slow. Corrective glass had been in existence for years before the leech applications and stale bread diets were discarded as eye cure-alls. Since gold and silver frames were called for, the jeweller also found himself involved in refraction. Then came the invention of the Ophthalmoscope and the elevation of vision correction from a craft to a science. Hence, toward the end of the nineteenth century, as a rose between these two established thorns, Optometry blossomed as a separate branch of knowledge — the culmination of the work of such scientists as Newton, Young and Helmholtz.

Optometry was given life not through the study of disease but through Physics, Mathematics and Optics. She was to be the guardian of the healthy eye. She viewed the eye in a new progressive light and not as an organ to be shrouded in the mysterious cloak of the medicine man or cajoled with inspiring Latin phrases. No longer were glasses to be the dark foreboding weapons of the judge or of the teacher to instill fear into the school child. She battled against prejudice. The two giants, ignorance and envy, blocked her path of progress, but like Nehemiah's men of old, Optometrists carried a sword in one hand and a trowel in the other. The result is history.

Such is the body of Optometry but it also has a soul. Like other abstract things, the spirit of Optometry is delicate, evasive and hard to define. It is much more than the patient's happy smile of appreciation, and yet we get a glimpse of it in this song of awakening:

"Two chips of glass:
Before, I never saw the sky,
Nor butterflies with painted bars,
Nor blades of grass;
The yellow bees, I never saw
Nor little birds, but only heard
Their friendly words from blurred
green trees.
The earth did seem dull, vague. —
I knew not why
I only knew all earth and sky dim
as a dream.
And then those chips of glass:
Oh myriad life! Oh wonder sight!
Oh jewelled world! Oh star hung
night!
My soul goes dancing with delight.
Thank God for chips of glass."

* * * * *

The House of Armati sleeps in peace.

## WANTED

Nurse wanted, good needlewoman, to take charge of infant who will help in housework.

Wanted, a female donkey. Apply personally or by letter.

To the Drapery trade . . . Wanted, a young man to be partly outdoor and partly behind the counter.

Lady wishes to dispose of perambulator, her own child growing out of it.

The Model Laundry. Change of proprietorship. N. B. Shirts ironed on the new principal.

Wanted . . . at a factory, sixteen girls to sew buttons on the sixth floor.

A lady keeping a first-class boarding school requiring a good piano is desirous of receiving a daughter of the above in exchange for the same.

Hotel. Under entirely new management. Lunch a la carte $.50. Dinner (table d'hote) $1.00. Dark room for developments.

Wanted, a steady respectable man to look after a garden and milk a cow who has a good voice and is accustomed to sing in choir.

For sale, baker's business, good trade, large oven, present owner been in it 17 years. Satisfactory reasons for leaving.

# SENIOR SLANTS

*by Leslie C. Wright*

For some strange reason, information on the outside activities of this group of Seniors is mighty hard to get. They just won't talk — even about each other, and your roving reporter has not yet found their favorite hang-outs. But cheer up, gang, the year is yet young. An efficient espionage system is being organized and by next issue the dirt should be rolling in. So bear with us while we skim through the somewhat trivial events of our recent classroom life, and let's see whose names are in the news.

Senior B seems to have solved one of Optometry's greatest problems: that of finding a "universal correction". So far Bill Reynold's new zylonite specs have been on fully half the members of the back row, and apparently were worn by such with great satisfaction. Hang on to that Rx Bill, it may come in handy.

While we're on the subject, let us all heed Dr. Green's warning about alternating strabismus patients: quote "They will double cross you every time."

Schiano couldn't resist a crack at that new piano up in the second floor clinic. He let loose with an impromptu serenade the other day, but Freshmen in the next room somehow failed to appreciate it. Gosh Bart, isn't it bad enough to have to listen to that screwball over across the alley on the South Campus? But you did give us an idea. Why not use music as an aid to our refractive technique? We've tried nearly everything else and the latest trend in popular songs seems to be favorable. Imagine inducing ciliary relaxation with "It's Wonderful to Look Into Your Eyes" or "I'm Not Crying, There's Rain in My Eyes"! What a pleasure to chart the color fields to the tune of "Was it red? No, No, NO, No. Was it green? No, No, NO, No!" etc.!!! — Oh, well.

*Shop Notes*: Fred Hunt walks through a box of Doc Graham's pet lenses, breaks at least six in the process. That's one way of eliminating some of those tough decentration problems.

Everybody is picking on poor old "Happy" again. Some day that remarkable good nature is going to crack, and the crew will find out what it's like to have a "Woolf at the door"!

Ben Zimmerman goes in for fancy bevelling this year, making perfectly good 40 round jobs into glass hearts, (careful, Ben, glass hearts break easily) buttons and whatnots. There's always one.

Best clinical experience for the month goes to Fred Eramo, who was forced to break up his static ski test on a youthful patient for a rather dynamic rush with said patient to the regions below. Nice nurse-maiding, Fred, and we'll bet that's one situation not covered by the "little black book".

Comes now a bit of serious thought, probably the first and last ever to be seen in this column. Not that it's our policy to preach: it never has been nor never will be, but let us ask one question. How flat-footed were YOU caught in that little Optometry session a few Fridays ago? I'm afraid it showed us all up and gave a shockingly clear picture of how little we actually do know in relation to the vast amount of material that we soon must know.

Not only for the faculty, for the school, and for the high ideals of the profession, but for the sake of our own sweet self-preservation — let's get going!!

There are tremendously difficult problems ahead — lots of them — but within every last one of us lies the ability to solve those problems, if only we force upon ourselves the WILL to do so. So once again, gang — LET'S GET GOING!!

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Knowledge is not wisdom until it is mixed with judgment.

# THRU THE EDITOR'S EYES

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## SATISFACTION GUARANTEED

Dr. Howard Foley, class of '38, had the unique experience of affording complete, and we mean *complete*, optical service to his first patient.

It seems that Howie recently opened offices in Lexington, Massachusetts, and having completed his first refraction, waltzed gaily into the wholesale optical house where he had at one time been employed, proudly waving the Rx in his hand and confidently expecting the cöoperation of the entire shop in the compounding of this all-important prescription. Imagine his dismay to find that the optical industry was suffering from labor trouble and there was no one in the shop to do the work. But was Howie daunted? Not on your life! Calling to mind the three years of sweating in the lower regions of M. S. O. and with "Doc" Namias' encouraging words ringing in his ears, our able young "optometrician" walked bodly into the shop and glorifying in the sudden wealth of equipment and materials, proceeded to line up, cut, edge, set up and inspect a really first-class job of rimless spectacle mounting.

Then resuming his coat, hat and best errand-boy atmosphere he started briskly off to deliver the job at his Lexington address.

## FRESHMEN

We regret that up to the present time we have been unable to select a Freshman news editor, but fully expect, with a litte cöoperation from these new-comers, to run a column of Freshman news in the November issue.

Meanwhile, will any of the members of the class interested in the position, contact the Editor or submit a sample column. And to the rest of you, remember that any one is eligible to submit articles and material to the SCOPE and we shall welcome, even if we are unable to print, all contributions. That little black box labelled "SCOPE" in the upper hall is there for a definite purpose and though we don't mind picking an empty cigarette package out of it now and then it would certainly be stimulating to find some printed material in it a little more enlightening than — *"a blend of the finest Turkish and domestic tobaccos"*.

Our thanks are extended to Mr. Weisman of the Freshman class for the following information concerning the outcome of the Frosh elections:

*President* — ERNEST MCVAY
*Vice-President* — WALTER MCKENNA
*Secretary* — JANET MECHANIC
*Treasurer* — MARSHALL MARGOLSKEE

# SOPH SOAP

*by Herbert S. Greenblatt*

Ah October!! — most vibrant of months — late summer combining with the first cool breath of winter; light literature combining with cold, hard text books; falling leaves, failing sophomores — ah, the futility of it all, etc., etc., etc. Soon come exams. Oh heck! Why do we always feel so apprehensive about exams? You know, everyone says if you just study faithfully you don't have to worry. Yeah — but who studies. — heh heh! (sickly like)

Ophthalmoscopy would certainly be swell if we could only find the fundus. Most of us can hardly locate the patient once we hide behind the black disc.

You know — nothing is quite so quaintly captivating as a look around the room when the class is in session . . . Normie Mayer assumes such a peacefully placid expression: one could just *kiss* him.

Bill Joseph, that intrepid being, loyally strode forth that cold autumn morning, jaw clenched, eyes doggedly determined, and sacrificed, willingly mind you, 2.2135 drops of blood. The fearlessness of it all!

Ocular anatomy continues to be just as general as ever what with sphenoid bones and what not coming up to haunt us at every twist and turn. However, ocular anatomy being what it is — couldn't you just picture Rogalsky waking up some morning and saying, "Oh, my goodness, I can hardly lift my levator superiori palpebrari" — that's plural you know. (Editor's Note: If "little Herby" had worked as hard at his Latin as he does on this column, he'd know that should be "levatores").

We can understand the possibility of the young pioneer's desire to save the settlement from the Indians, the distance to run and swim and its relationship to Fermat's principle — but how the heck did he manage to carry a log book with him all the time?

"Men seldom make passes at girls who wear glasses". Well, Mr. Tulsky isn't exactly a man, and she doesn't wear glasses all the time, but — when he made the pass — look up the definition of set-back. This all happened at Tisket-Tasket-by-the-Sea.

Many thanks must here be rendered to Dr. Roffman for his suggestion as to the title of this column. Clever, eh?

All sophomores were surprised and sorrowful when Al Dorris bid us goodbye. Al, we wish you all the luck in the world as you did us.

Physiology — bilirubin, hemolysis, hematopoiesis, polymorphonuclear leucocytes, thrombocyte, monocyte, phagocyte, you're a sight and I'll be a sight if the linotype operator (or the Editor) gets me and darkens my orbicularis palpebrarum. B'eye - b'eye.

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# ALUMNI NEWS

Dr. Bernard Saitz, Class of '38 announces the opening of his office in Caldwell, New Jersey.

Dr. Pearl Amici, '37, is now located in Manchester, Connecticut.

Dr. Samuel Alperen, '36, will middle aisle it before the New Year.

Dr. Abraham Singer, '36, announces the opening of offices in Greenfield, Mass.

Dr. James Pickering, '37, is now associated with Brown & Burpee, Concord, New Hampshire.

Dr. Alfred Roy, '37 and Dr. Henry Chevalier, '38, have established offices on Main Street, Worcester, Mass.

Dr. Bernard Levin, '37, announces the opening of an office at College Avenue, Somer-

*(please turn to page fourteen)*

# FACT AND FANCY

*by Hayvis Woolf*

The next time you go fishing don't insist on bright colored bait with the idea of luring more fish. This is a mistake a lot of people make, for hues mean nothing to fish; they are virtually color blind. (Personally, colors mean nothing to me either — I never caught a fish). And speaking of fish, maybe you didn't know that fish don't sleep. They rest by remaining quiet in still pools.

The Pennsylvania Dutch are a queer lot of people to my way of thinking. Until recently the doors of their houses were painted blue if they had an un-wedded daughter of marriageable age. (The lonesome hearts column must be getting a greater response now).

The Pennsylvania Germans in part still consider red objects as sacred — animals, berries, wax tapers, stones, etc.

Dr. Marston L. Bogert, Professor of Organic Chemistry at Columbia University, advises those who wish to see well in the dark to eat plenty of carrots and tomatoes. The professor stated that these vegetables contain "carotenoids" which are abundant in Vitamin A content and essential for the formation of visual purple.

As popularly supposed the telescope was not invented by Galileo. Hans Lippershey, a spectacle-maker, is known to have made one in 1608, whereas Galileo made his first one in 1609. There is also evidence to indicate that Roger Bacon constructed one nearly 400 years before this.

In China it was a courtesy required of a bespectacled person to take off his glasses in the presence of a dignitary or a friend. It was considered a gross insult to wear ones glasses in the presence of an official or elder.

*(please turn to page fourteen)*

# FRATERNITY SMOKER

*by Winston Clark, '39*

The frat activities for the year got off to a good start Monday, October 3, when members of P O S acted as hosts to a goodly sized group of potential fraternity members, at a smoker held at the Ritz Plaza. The occasion, an annual event, afforded a good opportunity for the frat members to meet the prospective members and vice versa.

The evening started off with the customary smoking of corncob pipes, and during the program, cigars and cigarettes were passed around. After getting better acquainted with each other the program officially opened. Vice Chancellor Paul Bouchard, taking charge of the program due to the illness of Chancellor Porter Dexter, introduced the following speakers: Grand Chancellor Dr. Green, Dr. Brucker, Dr. Bencker, Dr. Paul Cline, Dr. Graham, Dr. Donald Horley, Dr. Mark Budilov, Treasurer Winston Clark, and Secretary John Weast. During the course of the speaking, the purpose, activities, and standing of the frat were outlined, and we certainly hope that any of the references to "Hell Week" didn't cause any of the fellows to shrink back because after all we all went through it and are none the worse for it.

Following the speeches a social period ensued, during which time refreshments were served, and a program enjoyed. After a few tales and an exhibition of tap dancing by Frank Pierce, Blondie McKenna, playing a no mean trumpet, and Tom Stonhouse tickling the ivories went to town with a group of popular songs. The program ended with a general sing, thus ending a very successful evening, and after looking over the potentials present, your correspondent feels that P O S will have new members added who will be capable of holding high the standards of America's oldest optometric fraternity.

# FACULTY FUMBLES

What a game, folks! It sure is an eye-opener; that last terrific drive put M. S. O. right on the Snellen 40 ft. line. Here come the signals 10/20/10, 14/21/15, 6 to 1, hike!! It's a pass!! and Bencker fades back to sling it. Incomplete! Emmons get it but was forced out of bounds at the limits of the peripheral field. They're out of the huddle now, the quarterback barks the signals, the backfield shifts 90 degrees and it's an end run!! Namias through left tackle, but he's thrown for a 2 diopter lag and the ball is downed on his own base-apex line. Wow! What range! What amplitude! Those Snellen boys are practically polarizing our defence, and M. S. O. is calling on every ounce of its fusional reserve to hold 'em back. But wait — one of the boys is down! Yes sir, it's Paul Cline, out of the game with an aberrated optic axis; and a murmur of admiration rises from the crowd as he's lifted up and a log-book and four slide-rules fall from his pocket. Looks bad for the old school now, folks. Who'll they send in? It's . . . no . . . yes . . . wait . . . yes it is, none other than good old "Emery" Graham, tossing aside his "blank" and tearing madly out to the G. C. center of the field. Wow! Now we'll de-center 'em. Give 'em the good old M. S. O. cheer boys:

Eso, exo, rah, rah, rah!
Iso, ortho, sis, boom, bah!
Anaphoria, cataphoria, cyclophoria, too,
Bichrome, Duochrome, red, green, and blue!

L. G. W. and A. F. M.

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## --MYOPIA

*(continued from page four)*

posterior pole. (Figure 9).

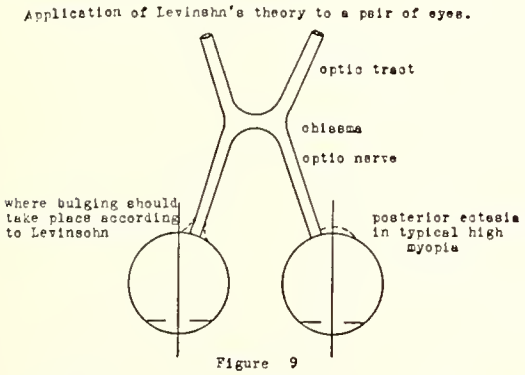
Application of Levinshn's theory to a pair of eyes.
optic tract
chiasma
optic nerve
where bulging should take place according to Levinsohn
posterior ectasia in typical high myopia

Figure 9

SUMMARY OF THE MECHANICAL THEORY: It is obvious, from the foregoing, that close work does play a part in the etiology of myopia, but it must also be acknowledged that just how it is accomplished is not understood. It seems that close work plays only a secondary role and only when the eye is predisposed to a too-yielding sclera will this effect of close work make itself felt in the form of myopia. Just what these predisposing factors are will be discussed in the endocrine and hereditary theories.

The following points make full acceptance of the mechanical theory impossible:

1. Nearly everyone has been subjected to close work, yet only a small percentage of the people (20%) eventually develop myopia.
2. It is a known fact that in certain countries people who are uneducated and do very little, if any close work, often develop high degrees of myopia.
3. In some cases one eye will be perfectly normal while the other eye may become myopic to quite a high degree.
4. One frequently observes that myopia is unilateral and that the patient has only monocular vision, while the other eye may be amblyopic and squinting and never used in the visual process, yet frequently becomes highly myopic.
5. How could one explain the case of

grave and rapidly progressive myopia in children in whom pathological changes originate early and develop far too rapidly in proportion to their near work?

We are convinced that more than the use of accommodation or convergence is responsible for the etiology of myopia. I repeat (and it is important that this point be thoroughly understood) that the eye must first be predisposed to myopia. Then and only then, may close work play a secondary part in the cause of myopia.

B. ENDOCRINE THEORY: Until recently nothing could be found of definite nature, to serve as the underlying and primary cause of myopia, that is, some factor that could serve to predispose the eye to myopia. For some time the endocrine glands have been suspected of playing a part in the etiology of myopia, but just which ones was not understood. All of the endocrines have, at some time or other, been suspected, but no clinical evidence has been established to substantiate the various claims made. However, from the mass of material dealing with myopia and the endocrines, two glands have been found which seem definitely related to myopia and results in the treatment of these endocrine conditions have been of a favorable nature. The two glands are:

1. The adrenals
2. The parathyroid.

(1) The Adrenals: Weiner of St. Louis, after analyzing the results of the experiment by Levinsohn, suggested that possibly the cramped state of the bodies of the apes, and lack of exercise would result in a hypoadrenal secretion, and that possibly this lack of adrenalin results in a lack of tonus in the coats of the eyeball, thus rendering it too yielding. This prompted him to administer adrenalin, 1:1000, directly into the conjunctival sac in progressive myopes. A review of his results follows.

A total of ninety-nine cases was used in determining the potency of adrenalin in checking the progress of myopia. Of this number, seventy-nine cases were checked, and twenty progressed in spite of the treatment. He considered a case checked in which the myopia did not increase on an average of more than .25 diopters over a period of a year. Most of these cases were kept under observation for a period of from two to six years. He also noted that in cases in which his treatment was temporarily discontinued, the myopia progressed, and when the patient returned to the adrenalin treatment the myopia was again checked.

SUMMARY: Although this form of treatment has been, in part, successful in checking the progress of myopia, for some reason it has not been effective in all cases, indicating that some cases are really of the adrenalin type while others are not, and that only those cases needing this treatment are affected by the adrenalin.

(2) The Parathyroid: The chief, if not the only function of the parathyroid is to maintain the normal calcium level of the blood. This level is 10 mgm. of calcium in every 100 c.c. of blood serum. The function of the parathyroid hormones relates to the metabolism of both calcium and phosphorous. The blood calcium is maintained by the continuous liberation of the newly formed hormones secreted into the blood and lymph and allows the assimilation of this calcium. That a deficiency in calcium is closely related to the sclera is suggested by the following observations:

1. The utilization of the mother's calcium for the development of the foetus sometimes causes a depletion of the calcium reserve of pregnant women. During this period, myopia frequently develops and changes in the teeth are observed.
2. The development of myopia occurs during the period of increased bony growth with a subsequent deprivation of other structures requiring calcium, namely the sclera and teeth.
3. Usually when the youth reaches his fullest growth the myopia reaches a

stationary point.

4. That Vitamin D with calcium is indicated in the treatment of myopia is suggested as a result of the following experimental finding. In growing dogs, when calcium and Vitamin D were deficient in the diets, microscopically it was observed that irregularities and swelling of the fibrous tissue of the sclera resulted, possibly rendering the sclera too yielding. This experiment would be more complete if the change in refraction had been noted at the same time, but since no record is given in the experiment, no definite conclusion as to the change in refraction can be drawn.

J. Spencer Walker of England, who has done considerable in the checking of the progress of myopia, approaches this problem by supposing that progressive myopia is a symptom of calcium deficiency and that the administration by mouth of calcium with parathyroid extract has a definite influence on the course of the progressive myope. He also found that calcium would not be assimilated by the body unless taken in conjunction with parathyroid extract. A summary of his proposition is as follows:

1. Myopia is a result of a systemic condition and not due to local causes.
2. Progression is found mostly during adolescence (age 8 to 20), which is a period of stress to the child who is growing rapidly and whose internal secreting glands are undergoing changes.
3. In the majority of cases, progression appears to stop spontaneously when adolescence ceases. This point is in the early twenties.
4. An abundance of dental caries is in evidence in the same period, which is suggestive of calcium deficiency.
5. If the bones are growing rapidly, they require calcium. Therefore the calcium demand for skeletal growth is increased, other structures are deprived of this necessary calcium, and ocularly the sclera is temporarily rendered too-yielding and subject to stretching.
6. He demonstrated microscopically the presence of calcium in the sclera tissue.

SUMMARY: There is no doubt that calcium and the parathyroids play a part in the etiology of myopia, and it may be possible that the progressive myope may result not from a hypo condition in parathyroidism, but rather from an excessve demand on the normal calcium. On the other hand, it is possible that the true progressive myope, which persists in spite of maturity, may be the result of a malfunctioning parathyroid gland (hypoparathyroidism). In other words, the progressive myope may be the result of an excessive demand rather than an actual deficiency in calcium. The treatment administered consists of the administration of calcium in tablet form by mouth, the dosage being two to three 15 grain tablets daily, combined with either parathyroid extract or Vitamin D in concentrated form. It is known that calcium administered without either parathyroid extract or Vitamin D will not be assimilated by the body. It has been frequently said that "You can feed them the plaster off the wall and it will be of no use unless combined with an assimilating agent." Viosterol, ten drops daily, is an excellent source of Vitamin D in concentrated form, and serves as the aforementioned agent.

Laval has been handling his progressive myopic cases by the administration of one quart of milk daily as a source of calcium, and ten drops of Viosterol.

From the clinical data available today it seems very likely that calcium deficiency certainly plays a part in progressive myopia, but since this form of treatment is so recent, it is difficult to make any positive statements as to the possible results of its use, clinically. This form of treatment is, at present, widely administered, and in the next few years it will be possible, by the accumulation of data, to study the results of its clinical application.

*(to be concluded next month)*

## -- FACT

*(continued from page ten)*
and regardless of his ametropia the wearer was bound to remove his correction when making an official call. Many embarrassing incidents are related in association with this custom.

Some people say they see stars when struck in the eye, others say they see all the colors of the rainbow. Often wondered what the effect would be on a color blind person?

And speaking of color-blindness, though this isn't a personal column, did you ever hear the story of how Mark Budilov, while working in a lunch room, dished out a bowl of gravy when asked for tomato soup? They all look the same to Mark.

An article in a recent issue of the Scientific American tells of a metal cylinder containing samples of our civilization which is to be buried beneath the Westinghouse building at the New York World's Fair, with the hope of showing our progeny in the year 6939 A. D. just how smart their forefathers were. Among the everyday articles to be included in the contents of the capsule is a pair of eyeglasses. Looks as though Optometry were here to stay.

This month's "wisdomism" (with apologies to Maury Ossen): When a girl has tears in her eyes these days, it's either love, hate or mascara.

## -- ALUMNI

*(continued from page nine)*
ville, Mass.

Dr. C. Donald Weathers, '38, is now associated with Dr. C. Davis, Rochester, New Hampshire.

Dr. Malcolm Harris, '38, announces the opening of his office in Presque Isle, Maine.

Dr. Mark Budilov, '38 was recently appointed to the school staff.

Dr. Maxwell Casson, '38 recently opened offices in Kennebunk, Maine.

Dr. Howard Foley, '38 will open offices in Lexington, Mass. shortly.

Dr. Richard Dexter, '38, promised to "love, honor and obey" after graduation last June. Happy landing, Dick.

Our congratulations to the following who successfully passed the State Board Examinations: Drs. Louis Plekavich, Leo Gibbons, Donald Horley, Alfred Hanson, Ralph Sennott, Howard Foley, Mark Budilov, Burton Askowith, Hyman Baker and Arthur Harris.

Dr. R. Robert Roffman, '38, is now connected with the school clinic.

*(more next month)*

## THE LESSON WE MUST LEARN

Sometimes it does appear as if there were no justice in the world. But though one may be frustrated, hurt, aggrieved, feel that the reward of effort isn't worth the pains, life has a way of making compensations in the most unexpected ways. Also, it has its own way of dealing with the unjust. Being vindictive is such an unnecessary step. Time brings its own punishment where it is due.

It's an old formula, this, of looking around at the rest of the world when you are down, to find out how lucky you are, after all. Life doesn't flow along like the much advertised song for anyone. Disappointments, accidents, sickness, death, obviously have a place in the scheme of things.

To reduce one's health and spirits to a low ebb over disappointments is to dramatize oneself ridiculously. What if one has not scaled the heights through the machinations of someone, or some cause; is that reason why one should sit weeping by the roadside, when there are a dozen other avenues of possibilities open?

The lesson we all must learn in time, is that disappointments, disillusions are met in every life, and that we must not go down under the blow. There is enough beauty around us still to rebuild supporting theories and vision, if we will only reach out and help ourselves to them. Let the years build up a philosophy so that trials may be met calmly and bravely.

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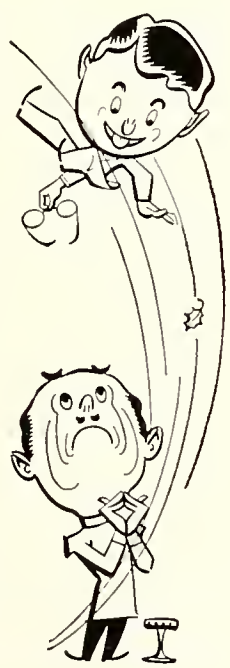

## GONE WITH THE WIND

"WHAT! You paid that much for one pair of glasses? Huh! I got mine for five dollars less!"

"Yes, but what did you get?"

It's conversations like that which steadily reduce the number of patients in some optical offices. See why:—

No one willingly admits that he was overcharged, so he argues that he got his money's worth. If he did get his money's worth, if you've assured him that his lenses are Bausch & Lomb, as fine as can be made, he is able to prove that the other fellow's cheaper lenses are of inferior grade. Gone, then, is the joy of the lower price. Gone, too, is confidence in the practitioner who supplied the lower-grade lenses.

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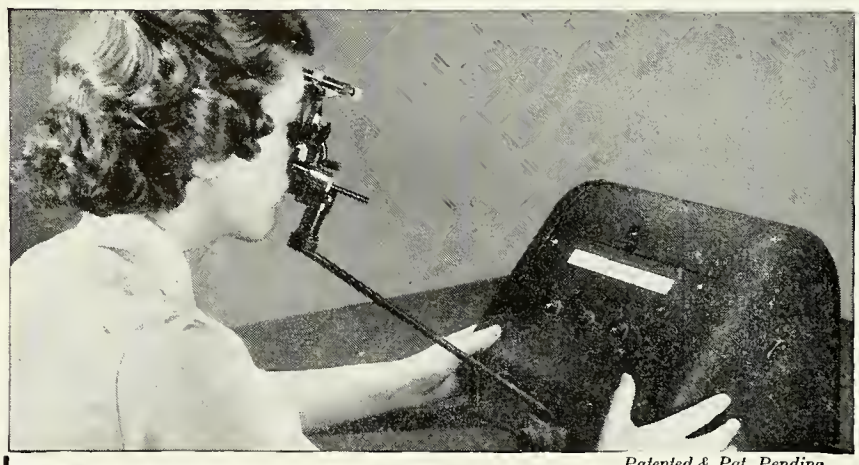

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**315 newspapers, "Time," "Parents Magazine," and "Scientific American" recently featured the importance of eye training. Pathe Newsreels and the Columbia Network likewise have brought home the advantages of training with the American Optical Metronoscope.**

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